

Lesson 2

Unit Pricing



Terry's background as a Red Seal chef helps him provide his customers with appealing, healthy food.

MATH ON THE JOB

Terry Robichaud is the department manager of the deli at Pete's Frootique grocery store in Halifax, Nova Scotia. Terry is Acadian. He grew up in Halifax, where he attended St. Patrick's High School.

"Some of my duties and responsibilities are to lead and motivate staff and provide vision and planning for business growth," he says. Terry also controls departmental finances such as wages and sales targets. "I use math to calculate prices for retail sales. From this I ensure our company achieves the appropriate profit margin on each item sold," says Terry.

Terry is considering buying a new type of samosa to sell in the deli. He will buy them frozen from a wholesaler, to bake and sell in the deli. One wholesaler sells a box of 50 samosas for \$28.00. Another wholesaler sells a box of 75 samosas for \$41.25. What is the unit price at each wholesaler? What is the unit price difference between the two companies? What factors apart from price might Terry want to consider?

$$\frac{41.25}{75} = \$0.55 \text{ / Samosa}$$

$$\frac{28}{50} = \$0.56 \text{ / Samosa}$$

Products are packaged and sold in various sizes, such as a 1-litre, 2-litre, or 4-litre jug of milk. How do you determine the least expensive choice? Different brands may package their products in different sizes of packages. Brand A may sell a 250 g package of meat, while Brand B may sell a 375 g package. Which is the better buy? Finding the **unit price** will allow you to compare prices, and help you determine the best buy.

Unit Price: the cost of one unit; a rate expressed as a fraction in which the denominator is 1

Unit Rate: the rate or cost for one item or unit

Consumer goods, such as pens or rolls of toilet paper, are often bundled together and sold in bulk. To compare the price when the quantity in the package is not the same, it is often useful to look at the unit cost of one item. If you have a business, you may buy items in a bulk purchase that you later want to charge to your customers one item at a time. To do this, you also need to calculate the cost of one item.

A unit price is the cost of one unit. It is sometimes referred to as a **unit rate**. To calculate a unit price, you can use a proportion where the second rate has a denominator of 1. For example, if you buy a package of 4 rolls of Eco-Friendly toilet paper for \$2.68, you can calculate the cost of 1 roll by using this proportion:

$$\frac{\$2.68}{4 \text{ rolls}} = \frac{x}{1 \text{ roll}}$$

To determine the product or brand that is the best value, or the size of purchase that is the best value, shoppers often compare the unit cost of different brands of the same product or different sizes of the same product.

Comparing unit prices can save you money at home and in the workplace. Unit price is not the only factor to consider, however. You may prefer the quality of one product over another. You may also find that there are more items in a large package than you can use. In this case, it may be a better choice to spend more on a per unit basis, and buy only what you need.

Wednesday, February 8th

- Reminder: Extra help Tuesday's and Thursday's at lunch hour
- Next Test/Quiz: Proportional Reasoning Quiz on Friday, February 10th
- Next Assignment Due: Friday, Feb.10th

Today:

- Check and go over homework (Pg.25)
- Assignment due Friday (go over assigned questions)
- Review Section 1.2 Unit Pricing
- Notes/Examples/Practice questions
- Classwork/Homework

ACTIVITY 1.3 WHICH PRICE IS RIGHT?

You and a partner own a janitorial service. Your janitorial service buys cleaning products for the office buildings that you clean. Before making your purchases, you research prices from local stores or online stores to calculate and compare the unit price of each item. You could record your research on a table similar to the following sample. For each item shown in the table, compare the cost per unit of two different package sizes. Record which size has the lower cost per unit.

COMPARING DIFFERENT SIZES

Item	Smaller size	Price	Unit price	Larger size	Price	Unit price
Light bulbs	3	\$2.49		6	\$4.49	
Paper towels	3	\$3.69		6	\$6.49	
Garbage bags	20	\$8.79		30	\$9.99	
Sponges	5	\$7.95		8	\$12.99	

COMPARING DIFFERENT SIZES

Item	Smaller size	Price	Unit price	Larger size	Price	Unit price
Light bulbs	3	\$2.49	0.83	6	\$4.49	0.75
Paper towels	3	\$3.69	1.23	6	\$6.49	1.08
Garbage bags	20	\$8.79	0.44	30	\$9.99	0.33
Sponges	5	\$7.95	1.59	8	\$12.99	1.62

1. For each item, which size of package is the best buy for your janitorial business? Why?
2. Why might a package of 20 garbage bags have a lower cost per unit than a package of 30 in the same brand? Which is the better buy?
3. Why might a person choose to buy the product that does not have the lowest unit price?

Example 1

Rosa buys supplies for the town hall in Montague, Prince Edward Island, where she works as a clerk. She wants to buy pens. The supplier sells a box of 12 pens for \$6.25. Calculate the unit price of 1 pen.

$$6 \quad \frac{6.25}{12} = \$0.52 / \text{pen}$$

Example 2

Claire picks fresh strawberries at a U-pick farm in Deep Bight, Newfoundland. If she fills a pint basket (0.5506 litres), it will cost her \$1.50. If she fills a 4-litre ice cream pail, it will cost \$9.00. Which size of container will give her a better buy?

$$\begin{array}{l} \frac{1.50}{0.5506} \approx \$2.72/L \\ 4 \times 1.50 = \underline{6} \end{array} \quad \begin{array}{l} \frac{9.00}{4} = \$2.25/L \\ 2 \times 9 = \underline{18} \\ 3 \times 4 = \underline{12} \end{array}$$

= \$24 10 L

Classwork/Homework

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Unit Pricing Worksheet

OMIT
#5

Thursday, February 9th

- Reminder: Extra help Tuesday's and Thursday's at lunch hour
- Next Test/Quiz: Proportional Reasoning Quiz on Friday, February 10th
- Next Assignment Due: Friday, Feb.10th

Today:

- Check and go over homework (Pg.26-27 and worksheet)
- Begin Section 1.3 Setting the Price (this will not be on your quiz)
- Notes/Examples/Practice questions
- Classwork
- Homework: Finish Assignment and review for Quiz

Classwork/Homework

Pg. 26 #1-7

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Unit Pricing Worksheet

OMIT
#5

1. Vikram purchases 12 sinks for his plumbing business at a wholesale price of \$1053.00. He wants to sell each sink to a different customer. What is the unit price of one sink?

$$\text{\$ } 87.75 / \text{sink}$$

2. A horticulture technician buys lawn fertilizer for several customers. She finds the following prices: 7 kg for \$19.99; 14 kg for \$35.95; 21 kg for \$50.99. Which package has the lowest unit cost?

$$\text{\$ } 2.86 / \text{kg}$$

$$\text{\$ } 2.57 / \text{kg}$$

$$\text{\$ } 2.43 / \text{kg}$$

3. A locksmith in Campbellton, New Brunswick, is buying locks for a new apartment building. One supplier sells locks at \$120.00 for four. Another supplier sells six for \$192.00. Which supplier has the lower cost for one lock? What other factors might you consider when selecting a lock?

\$32/lock

\$30/lock

quality
brand
style
color

4. Joel is a salesperson in a department store that sells T-shirts individually and in packages of two or three. One T-shirt sells for \$9.98, a package of two sells for \$15.49, and a package of three sells for \$22.99.

- a) Find the unit price when T-shirts are sold in a package of two. How much is the unit price in a package of three?
- b) Suppose a customer wants to buy seven T-shirts. Which combination of packages will be the least expensive?

$$2 \times \text{PKg of } 3 = \$55.96$$

$$1 \times \text{PKg of } 1$$

$$2 \times \text{PKg of } 2$$

$$1 \times \text{PKg of } 3$$

$$= \$53.97$$

6. A different store sells boneless steaks for the following prices:

- \$4.25 for 250 g; 0.25 kg — $\$17/\text{kg}$
- \$7.95 for 500 g; and 0.5 kg — $\$15.90/\text{kg}$
- \$29.50 for 2 kg. — $\$14.75/\text{kg}$

Which of these packages has the lowest unit price? How do these prices compare to those in question 5?

7. A potash mining company in northern New Brunswick is buying industrial first-aid kits in bulk. First-aid kits are available in three sizes.

- A small kit costs \$42.50 and contains enough supplies to meet the needs of 1–9 workers.
- A medium-sized kit costs \$58.25 and will serve 10–40 workers.
- A large kit costs \$70.50 and will serve 41–75 workers.

Jason, the buyer, needs to buy kits for 250 workers. Which combination of kits will be the least expensive? What will the total cost be before taxes?

3 Large (225) — (265) \$269.75
1 med (40)

Unit Pricing Worksheet

1. During the summer, Dean works as a cashier in a store near Saskatchewan's Greenwater lake Provincial Park. The store sells a case of 12 bottles of water for \$8.50 and individual bottles of the same brand of water for \$1.55.

- a. Approximately how much does each bottle of water in the case of 12 cost? \$0.71/bottle
b. How much would a customer save by buying a case of water, rather than 12 individual bottles?

$$1.55 \times 12 = \underline{\$18.60}$$

Saving \$10.10

2. Maureen purchased enough carpet to cover a rectangular room measuring 7 metres by 12 metres. The carpet costs \$8.15 per square metre.

- a. How much carpet did Maureen buy?
b. How much did the carpet cost?

$$b) 8.15 \times 84 = \$684.60$$

a)

$$\begin{array}{|c|} \hline 7 \times 12 \\ \hline = 84m^2 \\ \hline 12 \\ \hline \end{array}$$

3. Tyler is a self-employed sheet metal worker. He purchases 25 sheets of aluminum that measure 4 feet by 8 feet. The cost is \$4000.00 before tax and shipping.

- a. How much does 1 sheet cost?
- b. What is the price per square foot?

4. A painting business buys 3-inch wide paintbrushes from a supplier in cases of 6. One case costs \$31.29.

- a. How much do two brushes cost?
- b. If a customer buys two or more cases, the supplier reduces the price of the case by 10 percent. How much would 3 cases of paintbrushes cost? How much would each brush cost?

5. Which is the better buy: 8 ounces of Brie cheese for \$495 or 12 ounces for \$7.49?

6. Debbie is a cook in a restaurant that is open 6 days a week. She is responsible for recording and monitoring the amount of money she spends on food. In the summer, she uses an average of 9 loaves of bread per day.
- On average, how many loaves of bread does Debbie use each week?
 - If bread costs \$1.25 per loaf to buy from a wholesale distributor, how much money should Debbie budget to purchase it, for the month of June? Assume that there are just 4 weeks in June.

7. The cost of a 355-mL can of juice is \$1.25 in a vending machine. A 1.89-L carton of the same juice costs \$3.89 at the grocery store. How much would you save per mL if you bought juice from the grocery store instead of the vending machine? (Hint: 1 L equals 1000mL)

8. Patricio is ordering cartons of detergent for resale in his store. He can order a carton of 12 for \$34.68 plus \$5.45 for delivery, or a carton of 18 for \$51.30 plus \$6.25 for delivery. Which is a better buy, and by how much per unit?